ENGINEERING EXHIBITS
IN SUPPORT OF COMMENTS OF
THE AM RADIO PRESERVATION ALLIANCE
IN MB DOCKET NO. 13-249

KDKA(AM), Pittsburgh, Pennsylvania

JANUARY 2019

The attached engineering exhibits have been prepared on behalf of the AM Radio Preservation Alliance (AMRPA) to document the impact on AM radio service during nighttime, critical hours and daytime operations, respectively, if certain changes to the AM protection rules currently enforced by the Federal Communication Commission (FCC), under consideration in MB Docket No. 13-249, were adopted.[1] These exhibits clearly validate that there would be minimal theoretical gains in radio service provided by other AM stations at the expense of new interference to vastly more populations currently reached by established Class A AM radio service.

In this set of engineering exhibits, interference and coverage studies were conducted analyzing Class A AM Station KDKA, Pittsburgh, Pennsylvania, FCC Facility ID No. 25443, in regard to its nighttime (Figures 1-N through 6-N), critical hours (Figures 1.1-C through 2.3-C) and daytime operations (Figures 1-D through 4-D), applying the FCC's reduced protection requirements to Class A AM stations as proposed in the *SFNPRM*.[2]

As detailed further below, Figure 1-N documents the negative impact on the studied Class A AM station's nighttime signal from nearby non-Class A AM stations adding nighttime coverage assuming the *SFNPRM*'s Alternative 1 for nighttime hours protection to Class A AM stations (protection of 0.5 mV/m groundwave contour) was adopted, while Figures 2-N through 6-N show the theoretical additional service if neighboring non-Class A AM stations were to add nighttime coverage under Nighttime

[1] *See Revitalization of the AM Radio Service*, Second Further Notice of Proposed Rulemaking, FCC 18-139, MB Docket No. 13-249 (rel. Oct. 5, 2018) ("*SFNPRM*").

[2] These interference studies were conducted using computer software V-Soft AMpro2's incoming interference study program, combining interfering signal strength using the RSS methodology with a 50% minimum level for inclusion and a buffer grid size of 500x500.

Alternative 1.[3] Following these figures are contour maps (prepared by iHeartMedia's engineering staff) mapping these non-Class A AM station's theoretical nighttime AM gain areas in comparison with such station's licensed or permitted FM translator service area (60 dBu contour), where applicable,[4] along with a chart summarizing the actual FM translator population served in contrast to the theoretical nighttime AM gains coming at the expense of more interference on the AM band.

Figures 1.1-C, 1.2-C and 1.3-C address the studied Class A AM station during critical hours periods under Alternative 1 (Class A AM stations afforded no protection from other AM stations during critical hours). Figures 2.1-C, 2.2-C and 2.3-C document the studied Class A AM station during critical hours periods under Alternative 2 of the *SFNPRM* (protection of a Class A AM station during critical hours only to its 0.5 mV/m groundwave contour by amending 47 C.F.R. Section 73.190 critical hours figures to reference the distance from the Class A AM station's 0.5 mV/m contour in lieu of its 0.1 mV/m contour). These Critical Hours Alternative 1 and Alternative 2 studies reflect increasing interference (shaded red) to currently served populations by the studied Class A AM station at the intervals of one-hour, one-half hour, and one-quarter hour before sunset.

Daytime operations under the *SFNPRM* proposal are addressed in Figures 1-D through 4-D. Figure 1-D documents the daytime operations of the studied Class A AM station as currently protected (to its 0.1 mV/m daytime groundwave contour), as well

3 Based on a sampling analysis, *SFNPRM* Nighttime Alternative 2 generally is expected to authorize even more interference to the listeners of Class A AM stations than pursuant to *SFNPRM* Nighttime Alternative 1.

4 In situations where the non-Class A AM station has more than one FM translator authorization, only the FM translator facility closest to the theoretical nighttime AM gain area has been mapped.

as the predicted interference within that contour that would result if nearby AM stations operated with the maximum powers permitted in the direction of the studied Class A AM station as proposed in the *SFNPRM* (protecting only the 0.5 mV/m daytime groundwave contour of the Class A AM station). Figures 2-D through 4-D document the potential daytime population gain – solely in the direction of the studied Class A AM station as other stations may limit power gains in other directions – for the individual interfering stations, assuming the daytime protection to only the 0.5 mV/m groundwave contour was adopted as proposed in the *SFNPRM*.

Following the Figures are charts tabulating the results of these nighttime, critical hours and daytime studies.

In addition, the summary pages of the "Grid Based Incoming Interference Population Report(s)" conducted for the nighttime, critical hours and daytime analysis of the studied Class A AM station are also attached. Due to their length, only the summaries, and not the entire Grid Based Incoming Interference Population Report(s) are attached; the entire Report(s) are available upon the request of the FCC or any interested party.

Below is a summary of the methodology of the conducted coverage and interference studies in regard to the studied Class A AM station as documented in the attached figures and charts:

Nighttime

Figure 1-N maps the studied Class A AM station's nighttime 0.5 mV/m 50% skywave contour (red line), which is currently protected, along with the Class A AM station's nighttime 0.5 mV/m groundwave contour (blue line) which is proposed to be protected under Nighttime Alternative 1 of the *SFNPRM*. The resulting zone subject to new interference from co-channel Class D stations adding nighttime operations is shown in

red shading, and the currently-served population and population subject to such new interference are detailed in red on Figure 1-N. In determining the interference to the studied Class A AM station, the nighttime operation for each impinging Class D AM station is based on protecting the 0.5 mV/m groundwave contour of the studied Class A AM station pursuant to Nighttime Alternative 1 of the *SFNPRM*. Generally, the impinging Class D AM stations are non-directional. In those few instances where the Class D AM station employs a directional pattern, the presumed Class D AM station power has been limited in the direction of the studied Class A AM station's 0.5 mV/m groundwave contour and has not been verified for protection limits in other directions.

Figures 2-N through 6-N show the nighttime interference-free contour for each co-channel Class D interfering AM station assuming nighttime operations with maximum permissible power, while protecting only the nighttime 0.5 mV/m groundwave contour of the studied Class A AM station pursuant to Nighttime Alternative 1 of the *SFNPRM*. The potential nighttime population and area gains resulting from such co-channel Class D stations operating with maximum allowed power in the direction of the studied Class A AM station's protected 0.5 mV/m groundwave contour is also detailed in red on each figure. A tabulation of the nighttime study results is provided following all the figures.

Critical Hours

Figures 1.1-C through 1.3-C and Figures 2.1-C through 2.3-C each show the daytime 0.1 mV/m groundwave contour (blue line) and the 0.5 mV/m groundwave contour (red line) of the studied Class A AM station. There are three studies in each set, employing skywave diurnal factors (FCC Section 73.190 Figure 13) for the time frames of (i) one hour prior to sunset (SS-1), (ii) ½ hour prior to sunset (SS-0.5), and (iii) ¼ hour prior to sunset (SS-0.25). Predicted interference within the respective contours is shown in red shading.

Under Critical Hours Alternative 1 of the *SFNPRM,* neighboring stations to a Class A AM station (which in this instance are Class D stations) could continue to operate at full daytime power during critical hours. The interference to the studied Class A AM station from such unrestricted power operations of its neighbors during critical hours per Alternative 1 of the *SFNPRM* is documented in red shading on Figures 1.1-C, 1.2-C and 1.3-C, for each respective time period (one hour, ½ hour and ¼ hour prior to sunset).

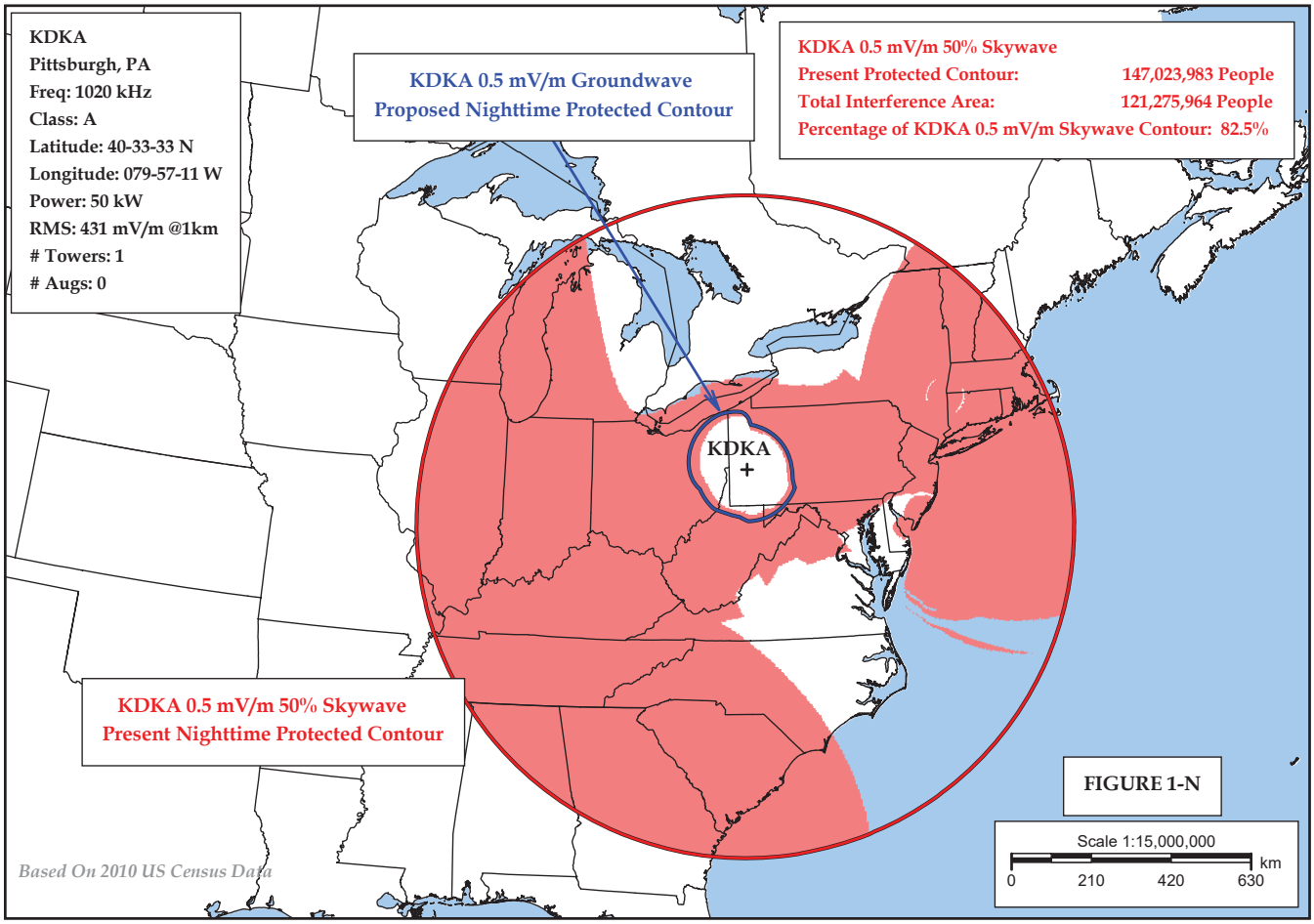
Pursuant to Critical Hours Alternative 2 of the *SFNPRM*, the Commission would change the vertical axis reference for application of Figures 9, 10 and 11 of 47 C.F.R. Section 73.190 from "Distance from 0.1 mV/m Contour in Miles" to "Distance from 0.5 mV/m Contour in Miles." The interference to the studied Class A AM station from such revised permissible power calculations for its neighbors during critical hours per Alternative 2 of the *SFNPRM* is documented in red shading on Figures 2.1-C, 2.2-C and 2.3-C, for each respective time period (one hour, ½ hour and ¼ hour prior to sunset).

The box on the upper left-hand corner of each Critical Hours figure sets forth the data for the population, area and percentage impact of the resulting interference under the reviewed Critical Hours Alternative on the studied Class A AM station's 0.1 mV/m contour; the box on the upper right-hand corner, on the studied Class A AM station's 0.5 mV/m contour. A tabulation of the critical hours study results is provided following all the figures.

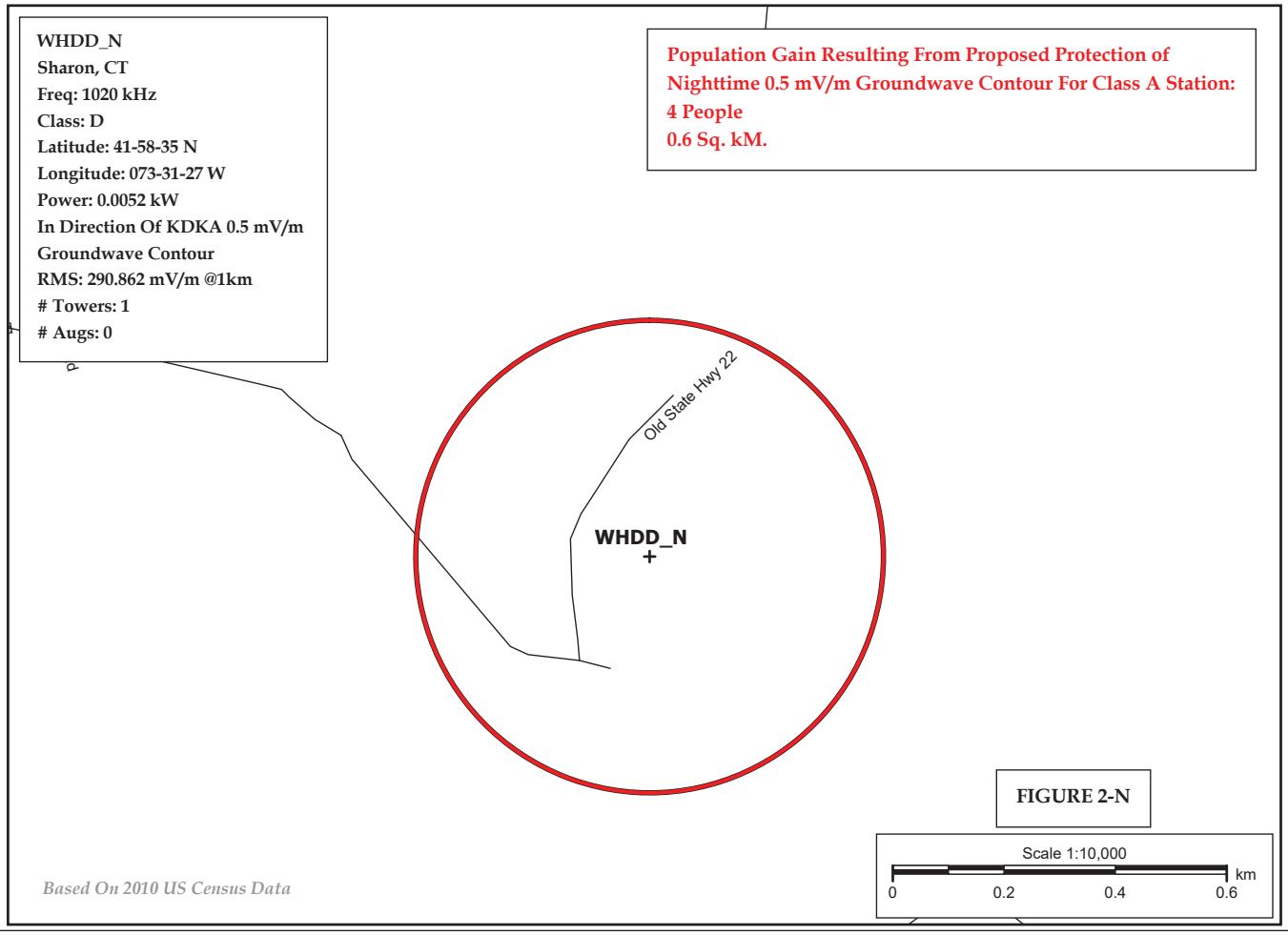
Daytime

For the studied Class A AM station, Figure 1-D maps the present daytime protected 0.1 mV/m groundwave contour (blue line) as well as the less-encompassing daytime 0.5 mV/m groundwave contour (red line) proposed to be protected from co-channel interference in the *SFNPRM*. The interference area resulting from nearby co-channel stations (typically Class D AM stations) operating with maximum potential power (up to 50 kW) in the direction of the studied Class A AM daytime 0.5 mV/m groundwave contour is shown in red shading. The box at the upper right-hand corner of Figure 1-D details the currently protected population within the studied Class A AM station's daytime 0.1 mV/m groundwave contour, the population within that contour that would be subject to interference if only the daytime 0.5 mV/m groundwave contour is protected as proposed in the *SFNPRM*, and the percentage of the current population now served that such interference zone encompasses.

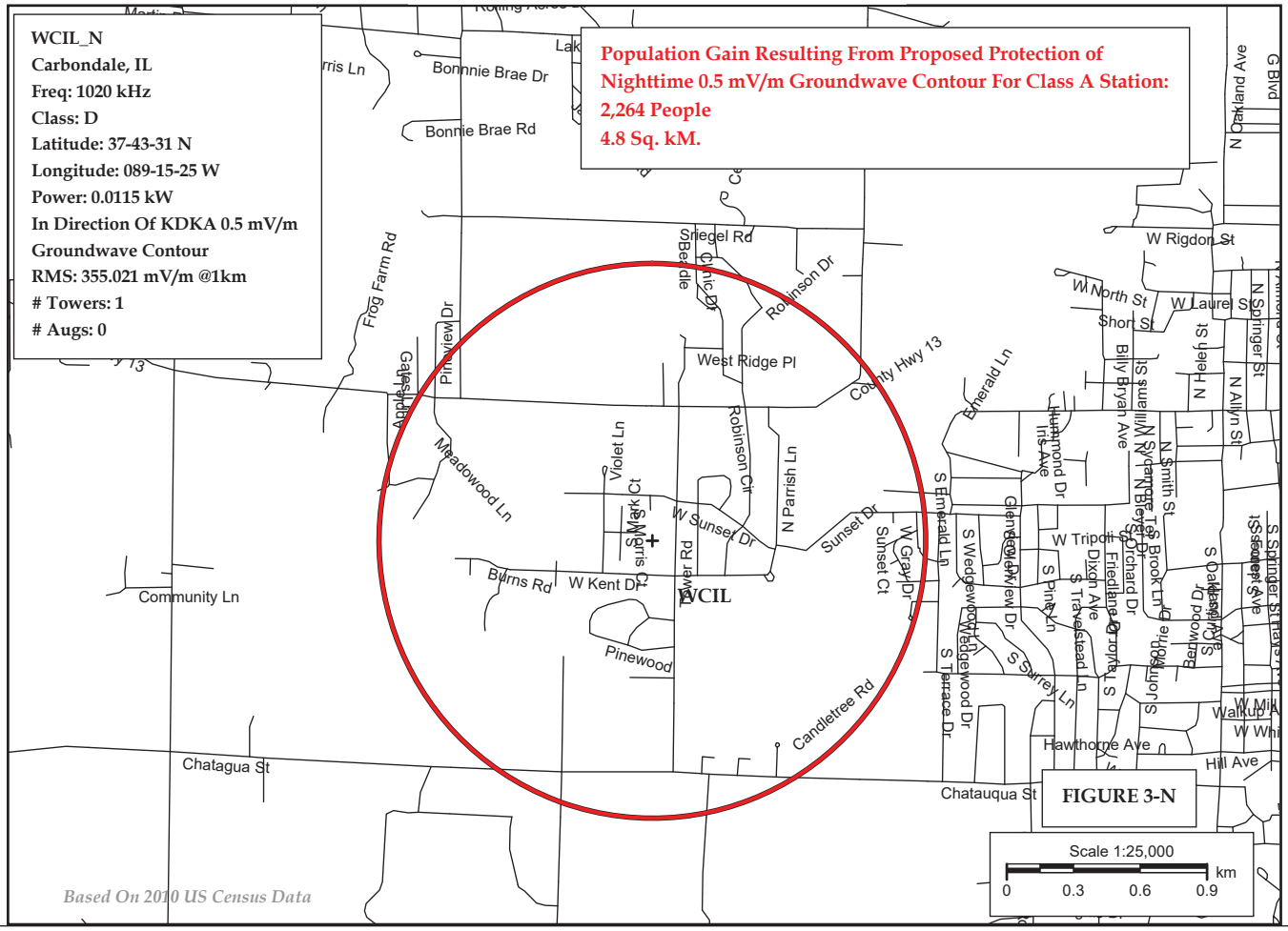
Figures 2-D through 4-D document the potential daytime population gain for the individual interfering stations in the direction of the studied Class A AM station with daytime protection to the Class A AM station's 0.5 mV/m groundwave contour, as proposed in the *SFNPRM*. The boundaries for the gain areas are the difference between the licensed and potential 0.5 mV/m groundwave contours of the interfering station through the arc of the Class A AM station's protected 0.5 mV/m groundwave contour, as detailed on each of Figures 2-D through 4-D. Individually and collectively, the potential daytime population gains by the interfering stations in the direction of the now-limiting Class A AM station under the *SFNPRM* daytime proposal constitutes a tiny percentage of the population that would be subject to new interference to their daytime reception of the studied Class A AM station. A tabulation of the daytime study results is provided following all the figures.



Predicted Nighttime Interference Area To The Present Protected KDKA 0.5 mV/m 50% Skywave Nighttime Contour From Class D Stations WHDD, WCIL, WPEO, WIBG and WRIX Operating With Maximum Allowed Power In The Direction Of KDKA's 0.5 mV/m Groundwave Contour



WHDD NIF 46.3 mV/m Groundwave Contour With Protection To Class A Station KDKA's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour



WCIL NIF 28.8 mV/m Groundwave Contour With Protection To Class A Station KDKA's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

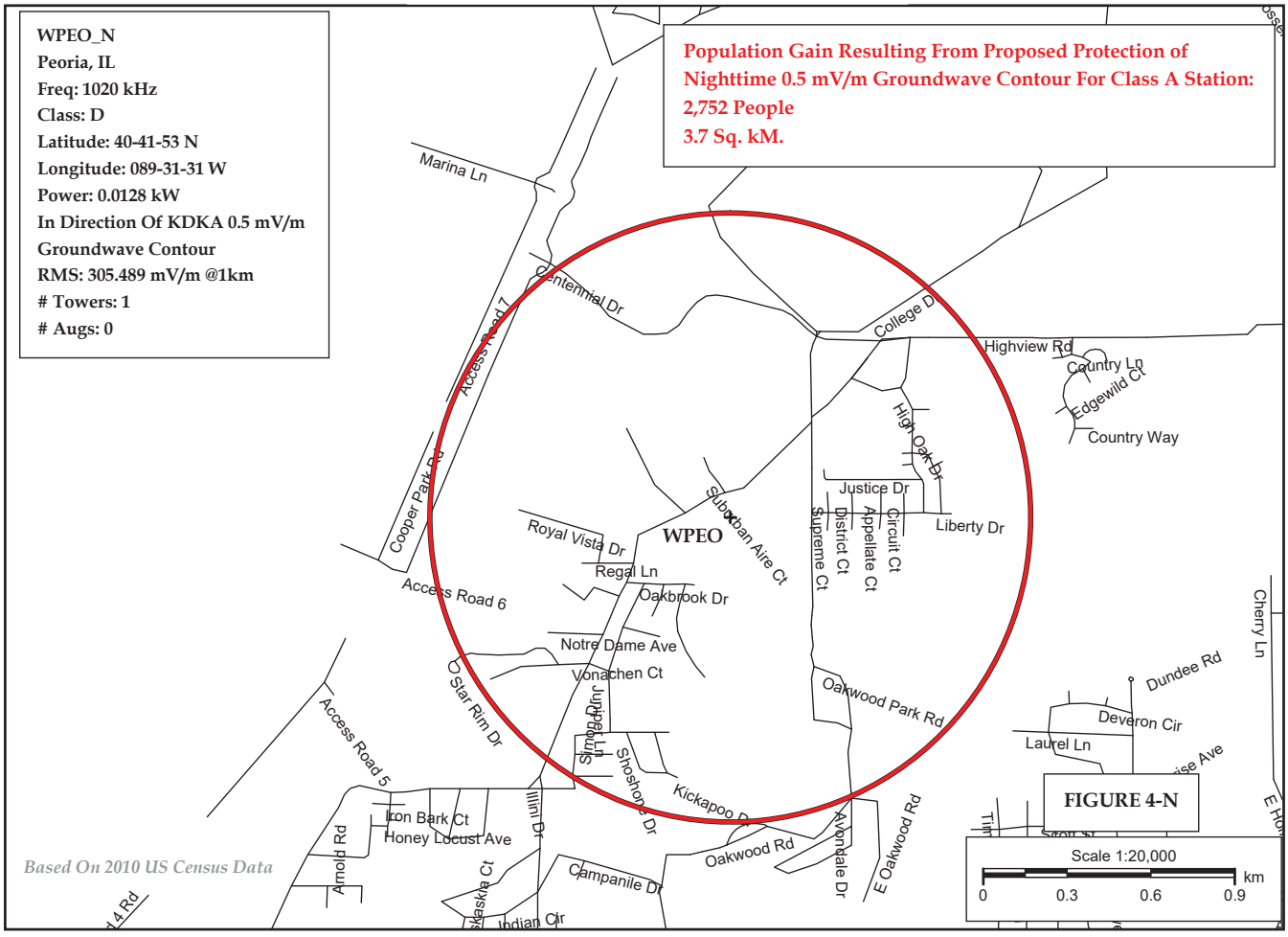
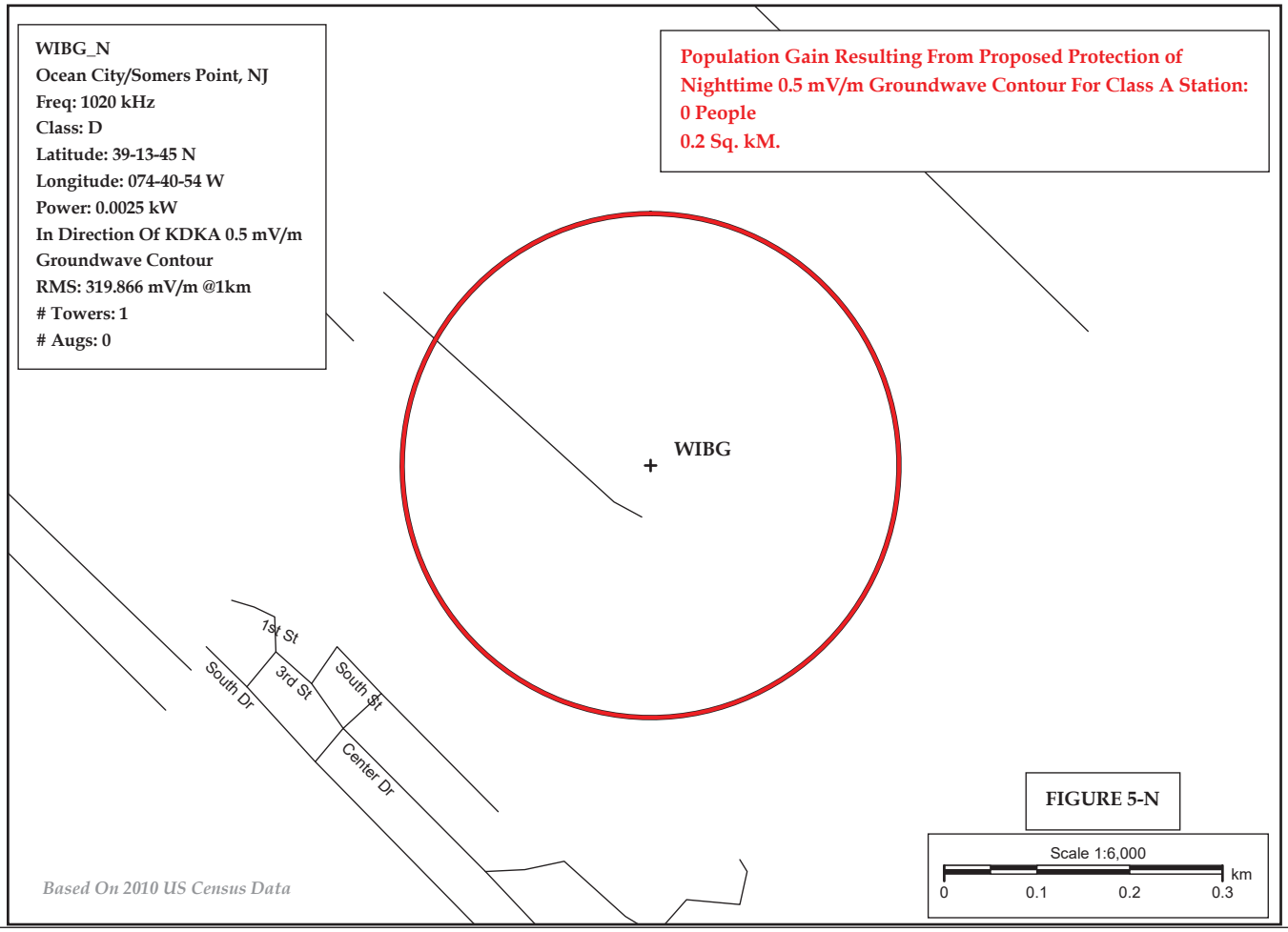
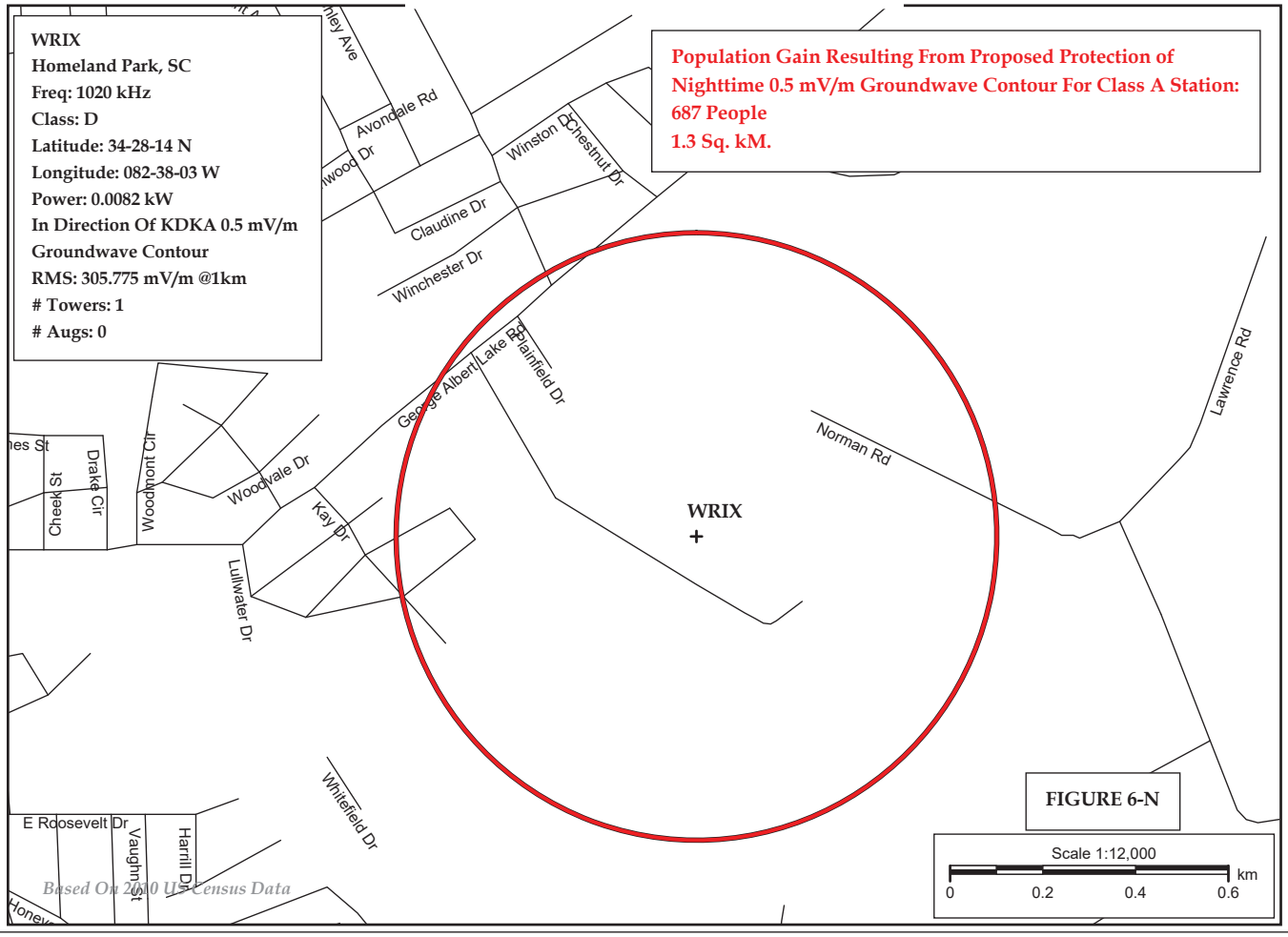


FIGURE 4-N

WPEO NIF 30.1 mV/m Groundwave Contour With Protection To Class A Station KDKA's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

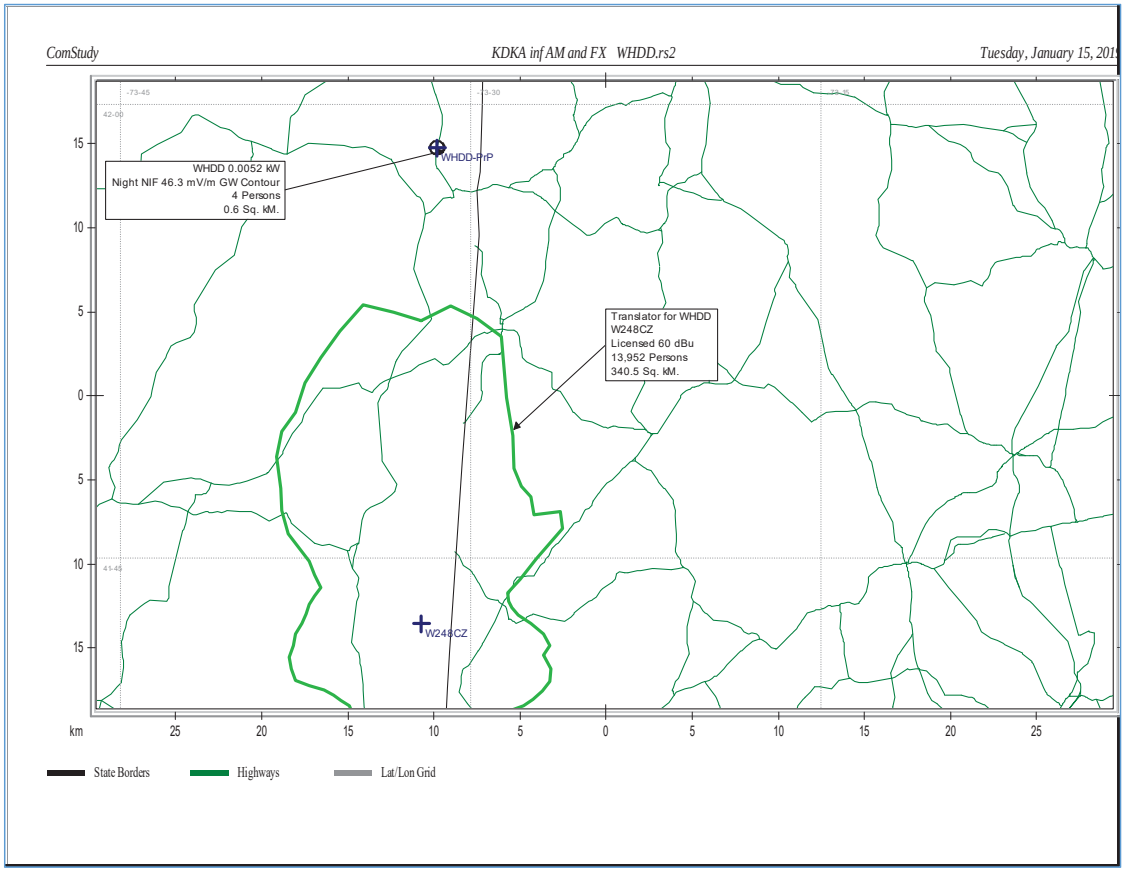


WBIG NIF 56.3 mV/m Groundwave Contour With Protection To Class A Station KDKA's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

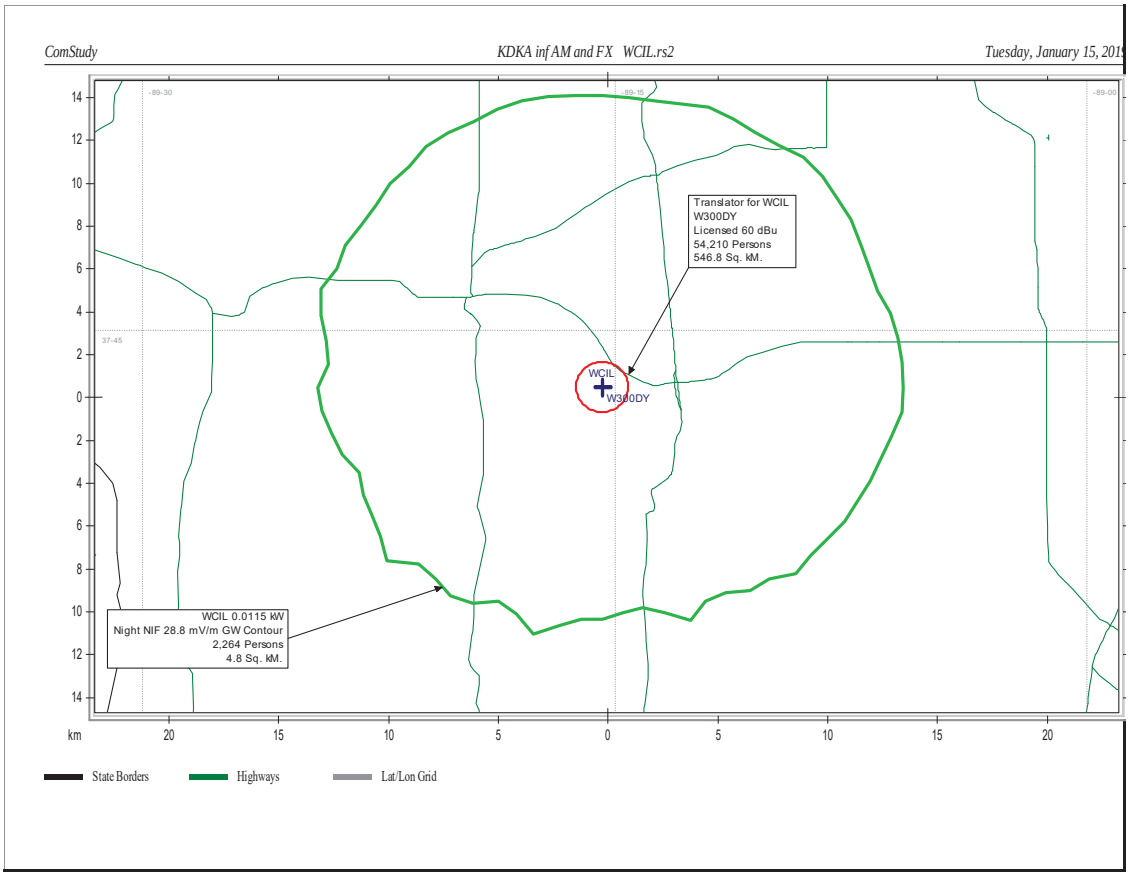


WRIX NIF 38.6 mV/m Groundwave Contour With Protection To Class A Station KDKA's Proposed Protected 0.5 mV/m Groundwave Nighttime Contour

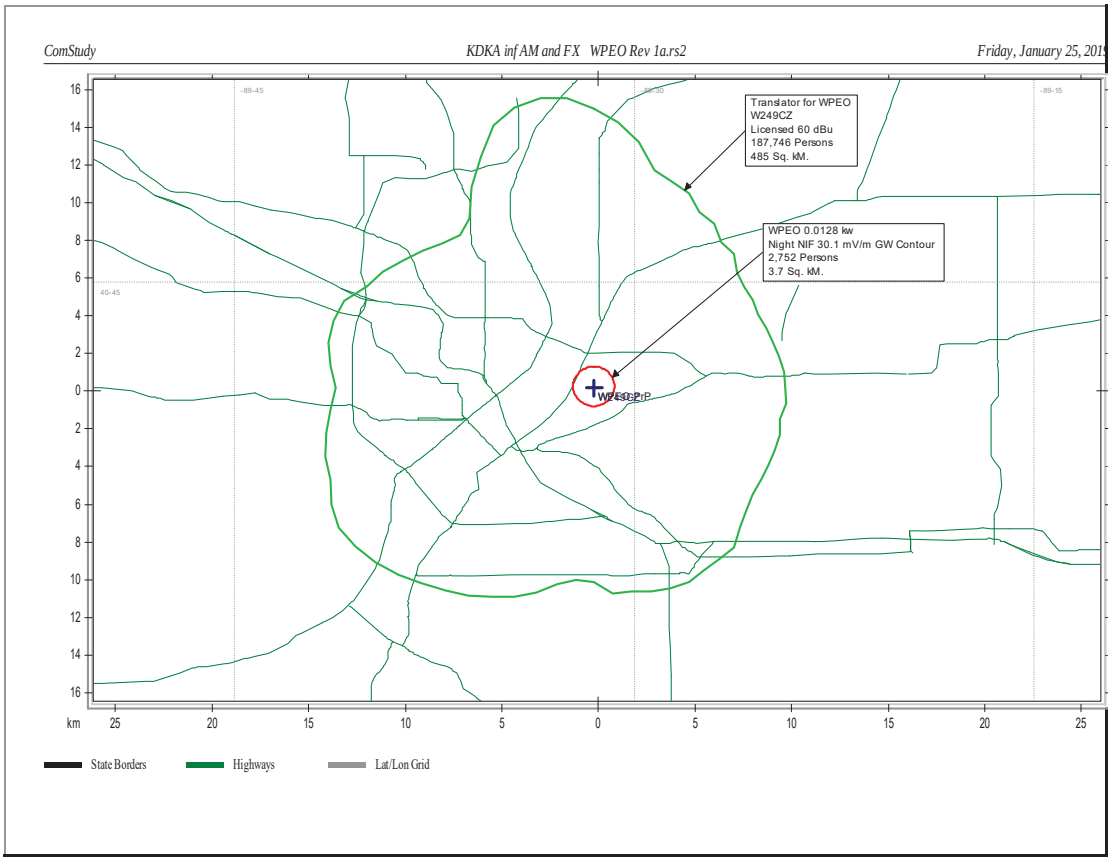
WHDD


ComStudy
KDKA inf AM and FX WHDD.rs2
Tuesday, January 15, 201
WHDD 0.0052 kW
Night NIF 46.3 mV/m GW Contour
4 Persons
0.6 Sq. kM.
WHDD-PrP
Translator for WHDD
W248CZ
Licensed 60 dBu
13,952 Persons
340.5 Sq. kM.
W248CZ
km
State Borders
Highways
Lat/Lon Grid

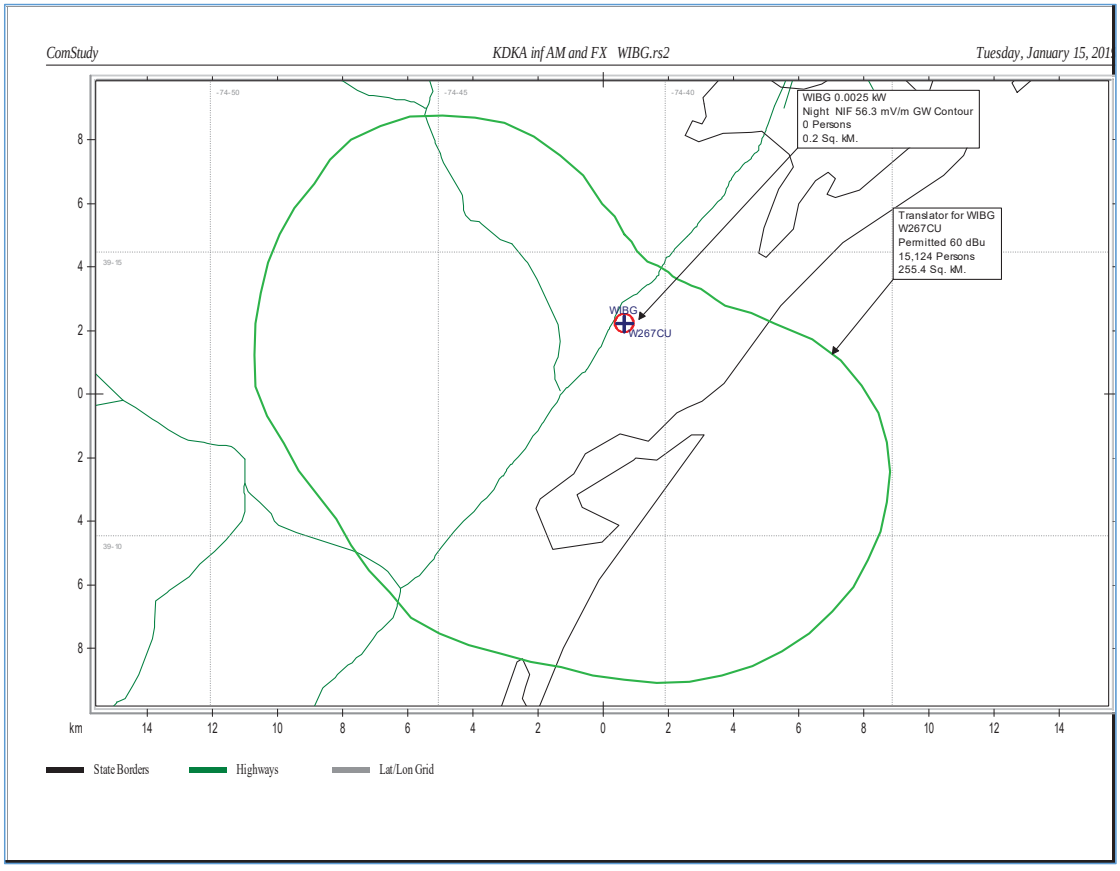
WCIL


ComStudy
KDKA inf AM and FX WCIL.rs2
Tuesday, January 15, 201
Translator for WCIL
W300DY
Licensed 60 dBu
54,210 Persons
546.8 Sq. kM.
WCIL
W300DY
WCIL 0.0115 kW
Night NIF 28.8 mV/m GW Contour
2,264 Persons
4.8 Sq. kM.
km
State Borders
Highways
Lat/Lon Grid

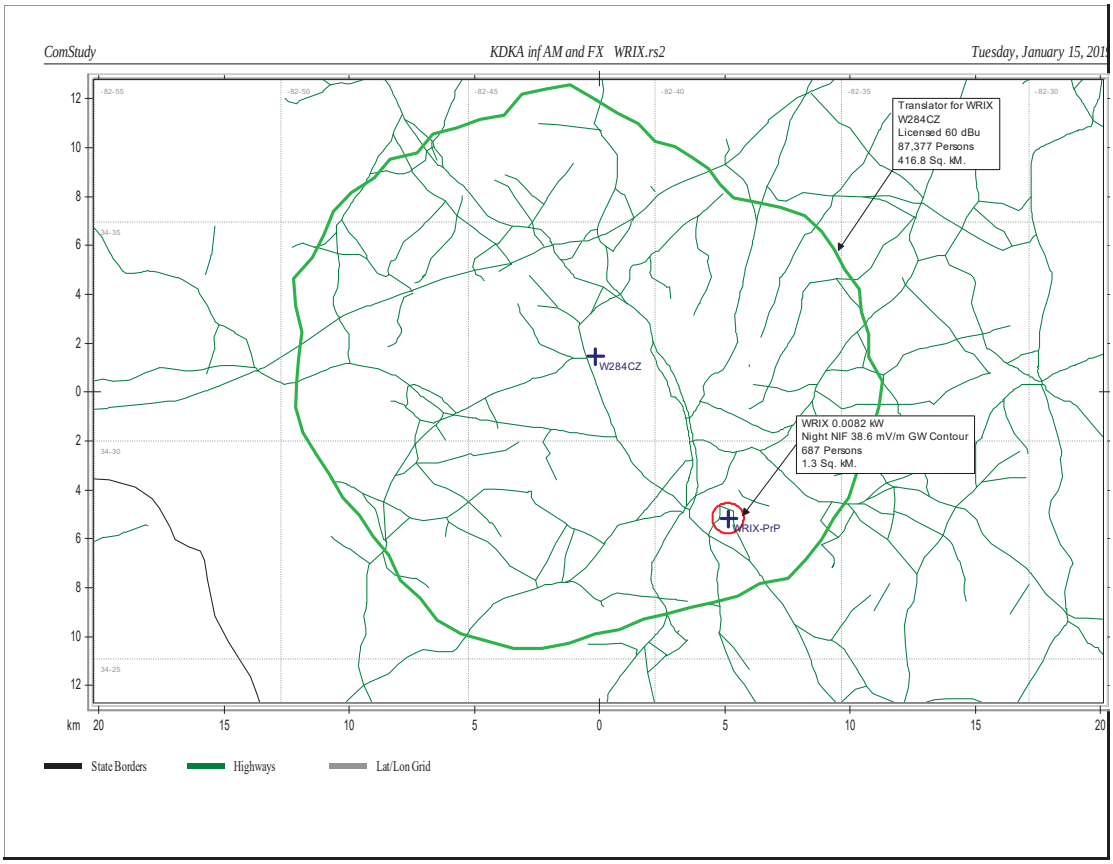
WPEO


ComStudy
KDKA inf AM and FX WPEO Rev 1a.rs2
Friday, January 25, 201
Translator for WPEO
W249CZ
Licensed 60 dBu
187,746 Persons
485 Sq. kM.
WPEO 0.0128 kw
Night NIF 30.1 mV/m GW Contour
2,752 Persons
3.7 Sq. kM.
km
State Borders
Highways
Lat/Lon Grid

WIBG

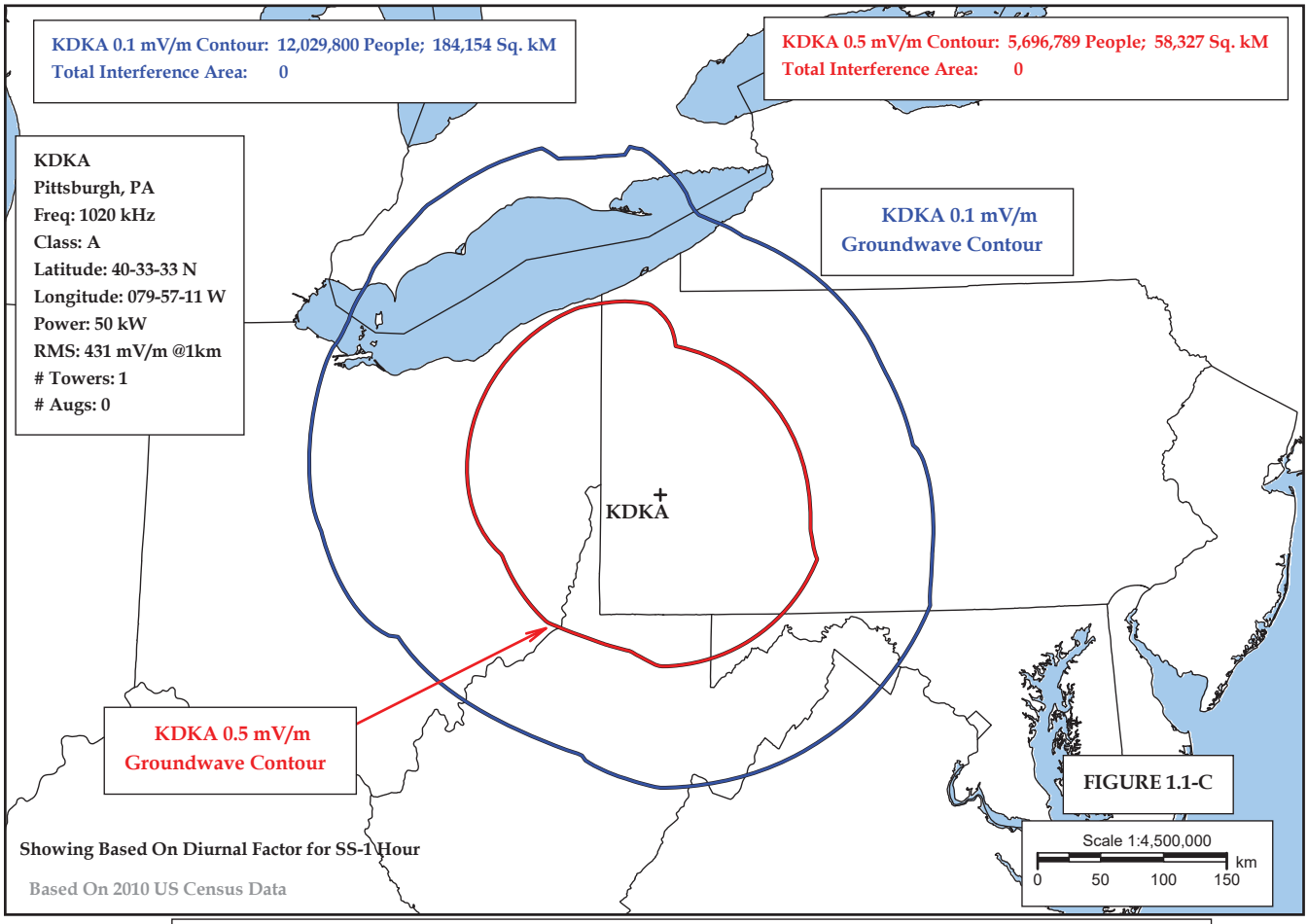

ComStudy
KDKA inf AM and FX WIBG.rs2
Tuesday, January 15, 201
WIBG 0.0025 kW
Night NIF 56.3 mV/m GW Contour
0 Persons
0.2 Sq. kM.
Translator for WIBG
W267CU
Permitted 60 dBu
15,124 Persons
255.4 Sq. kM.
WIBG
W267CU
-74-50
-74-45
-74-40
39-15
39-10
km
14 12 10 8 6 4 2 0 2 4 6 8 10 12 14
State Borders
Highways
Lat/Lon Grid

WRIX

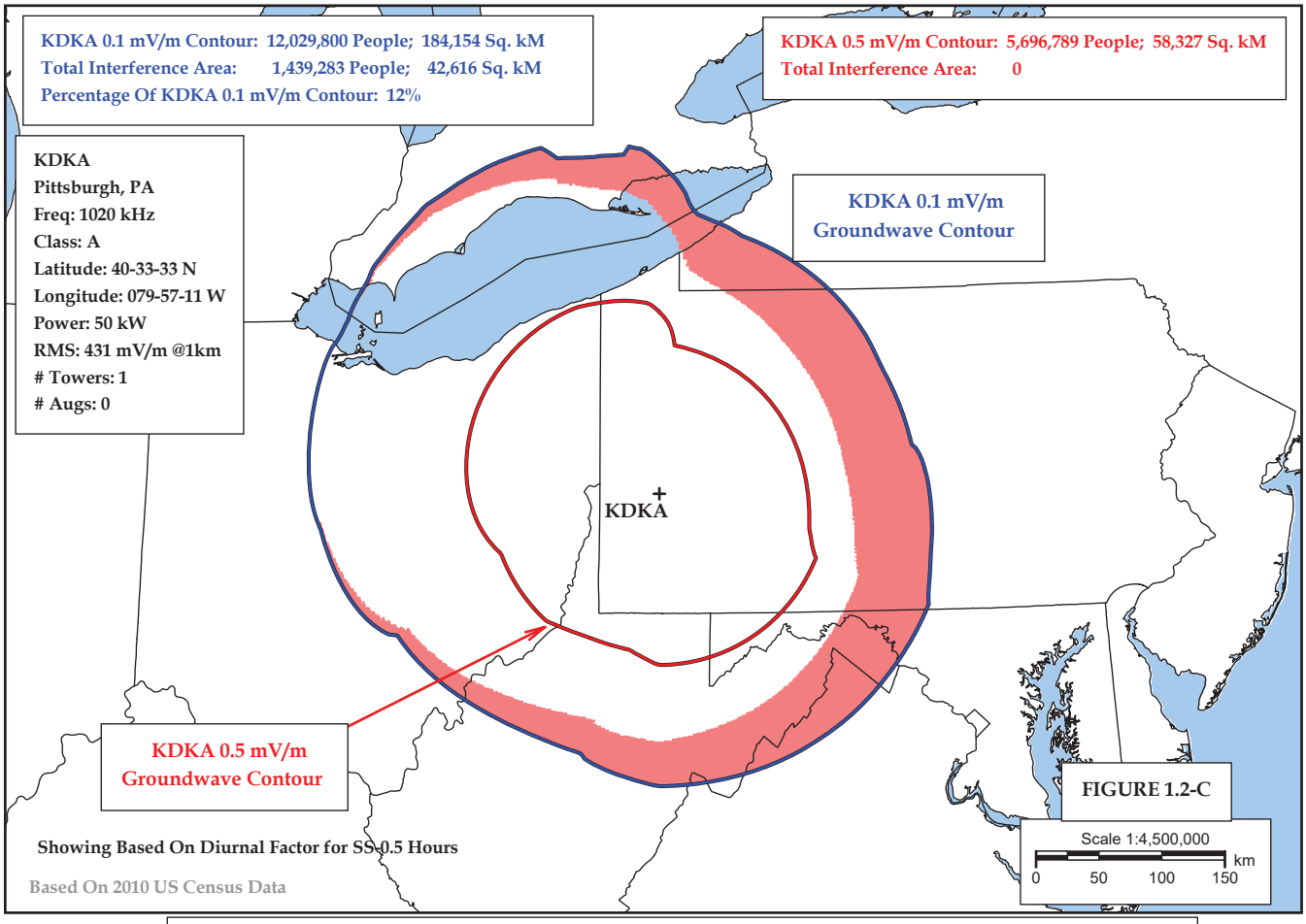

ComStudy
KDKA inf AM and FX WRIX.rs2
Tuesday, January 15, 201
Translator for WRIX
W284CZ
Licensed 60 dBu
87,377 Persons
416.8 Sq. kM.
W284CZ
WRIX 0.0082 kW
Night NIF 38.6 mV/m GW Contour
687 Persons
1.3 Sq. kM.
WRIX-PrP
km 20 15 10 5 0 5 10 15 20
State Borders
Highways
Lat/Lon Grid

Summary of FM Translator Studies/KDKA

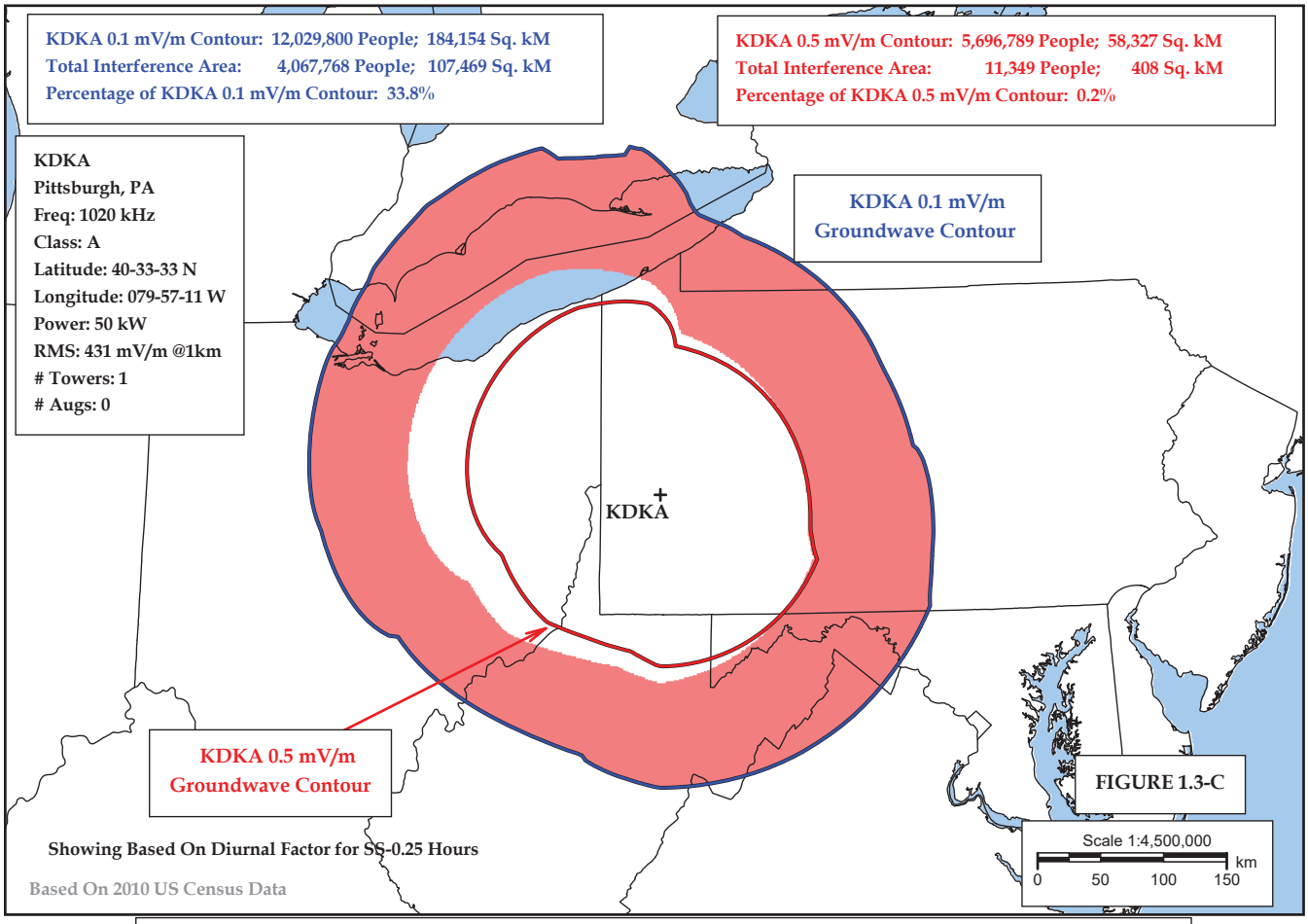
Class D AM Station Causing Interference to Class A Station KDKA if Class D Operates with Maximum Power Per Nighttime Alternative 1	**FM Translator (License or Permit) Associated with Class D Station**	**Population Within FM Translator's 60 dBu Contour**	**Population Within Class D Station's Potential Nighttime Interference Free Contour Under Nighttime Alternative 1**
WHDD	W248CZ	13,952	4
WCIL	W300DY	54,210	2,264
WPEO	W249CZ	187,746	2,752
WIBG	W267CU	15,124	0
WRIX	W284CZ	87,377	687
Cumulative Sum:		**358,409**	**5,707**



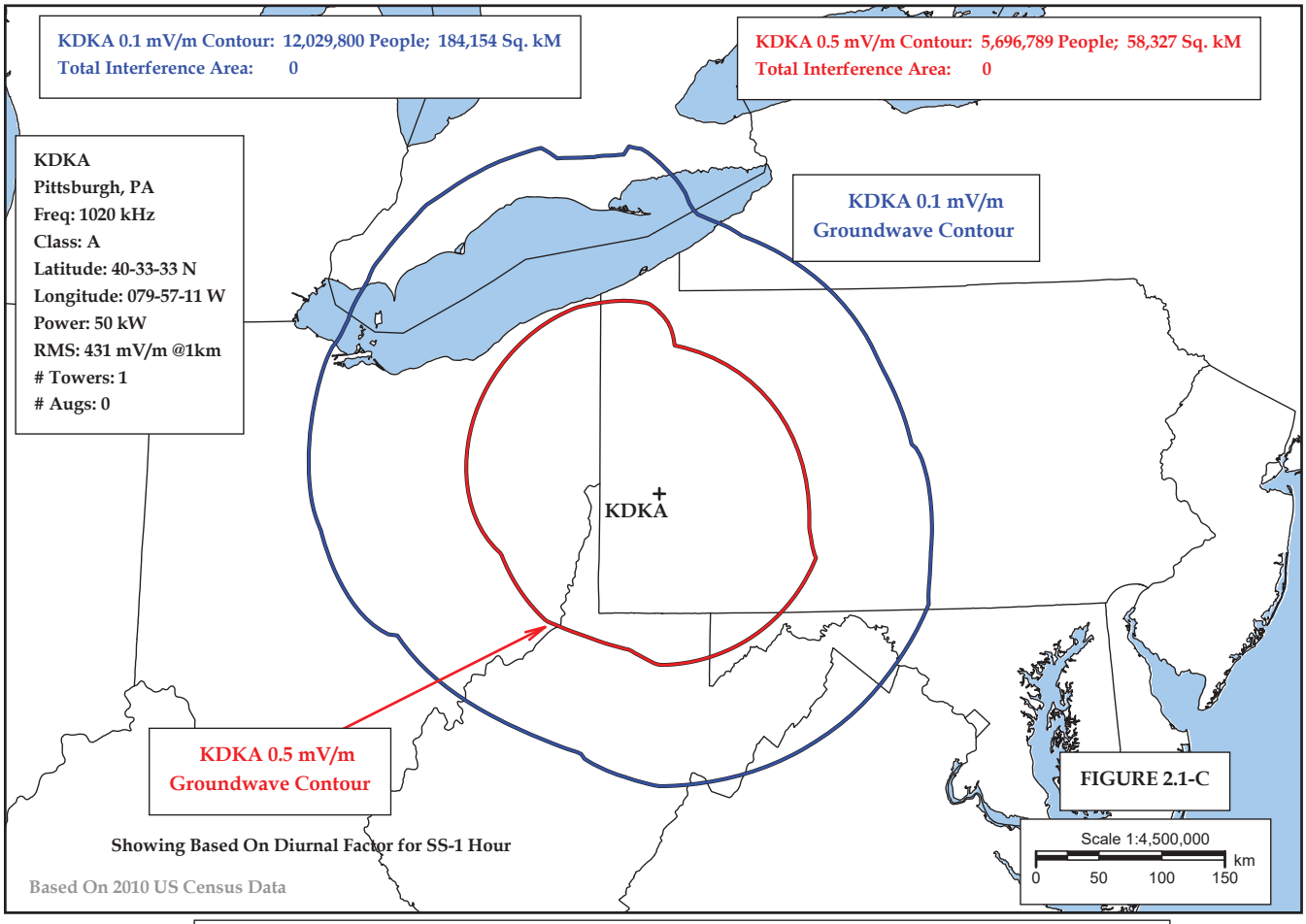
Alternative 1 - Proposed Critical Hours Interference Area from The Licensed Daytime Hours Operation of Stations WHDD and WIBG To Class A Station KDKA, Pittsburgh, PA for One Hour Before Sunset



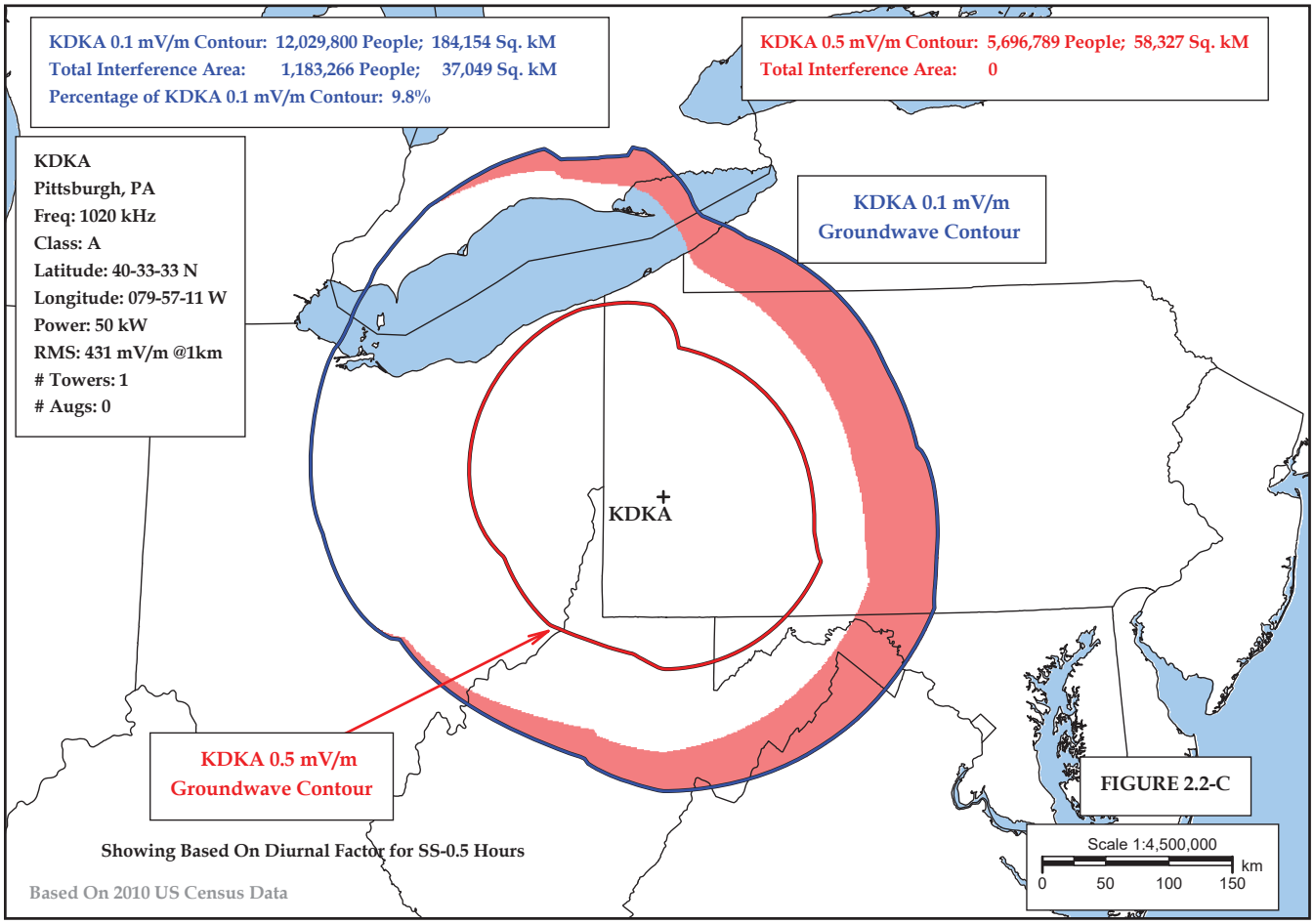
Alternative 1 - Proposed Critical Hours Interference Area from The Licensed Daytime Hours Operation of Stations WHDD and WIBG To Class A Station KDKA, Pittsburgh, PA for One-Half Hour Before Sunset



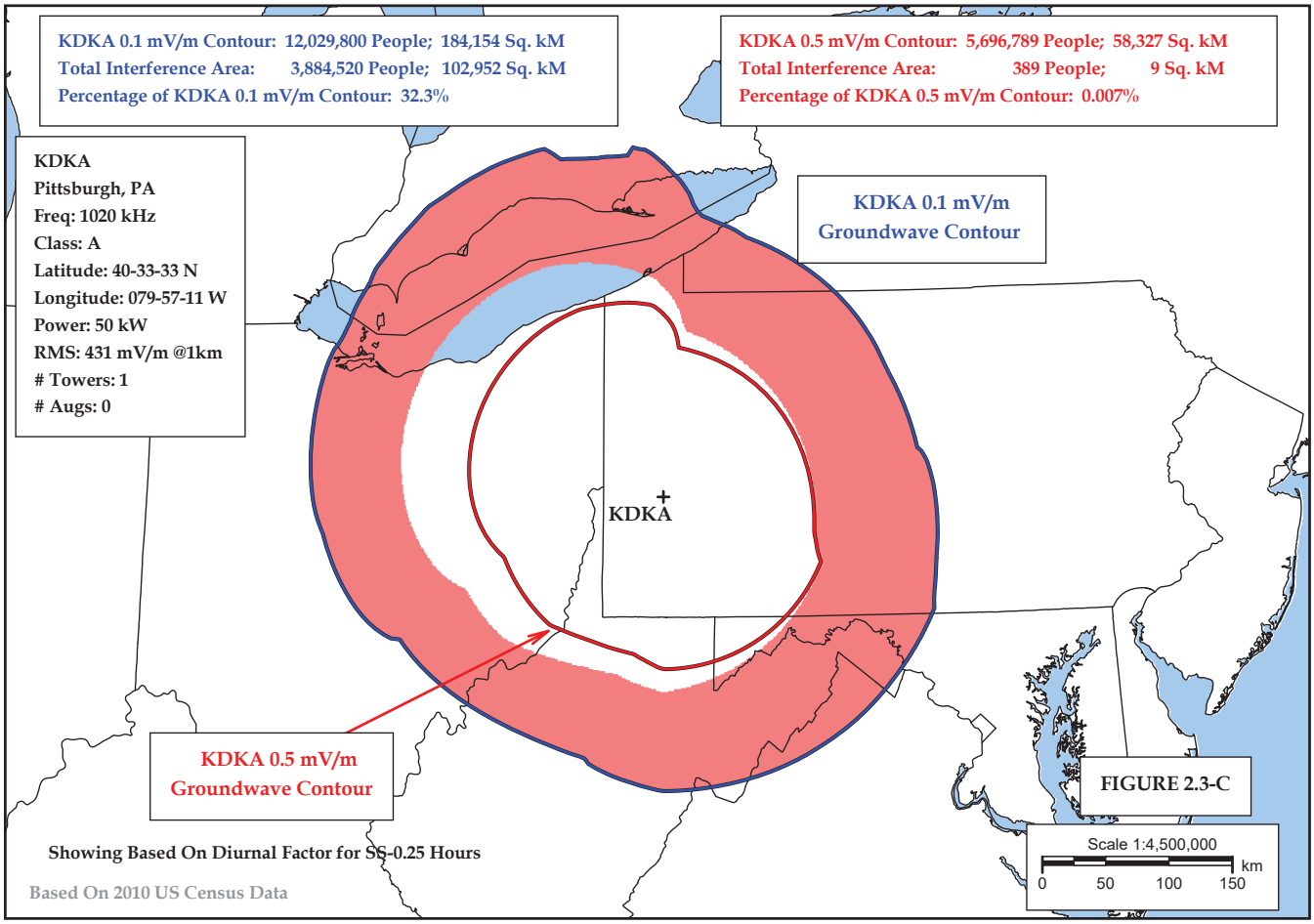
Alternative 1 - Proposed Critical Hours Interference Area from The Licensed Daytime Hours Operation of Stations WHDD and WIBG to Class A Station KDKA, Pittsburgh, PA for One-Quarter Hour Before Sunset



Alternative 2 - Proposed Critical Hours Interference Area from Potential Critical Hours Operation of Stations WHDD and WIBG to Class A Station KDKA, Pittsburgh, PA for One Hour Before Sunset

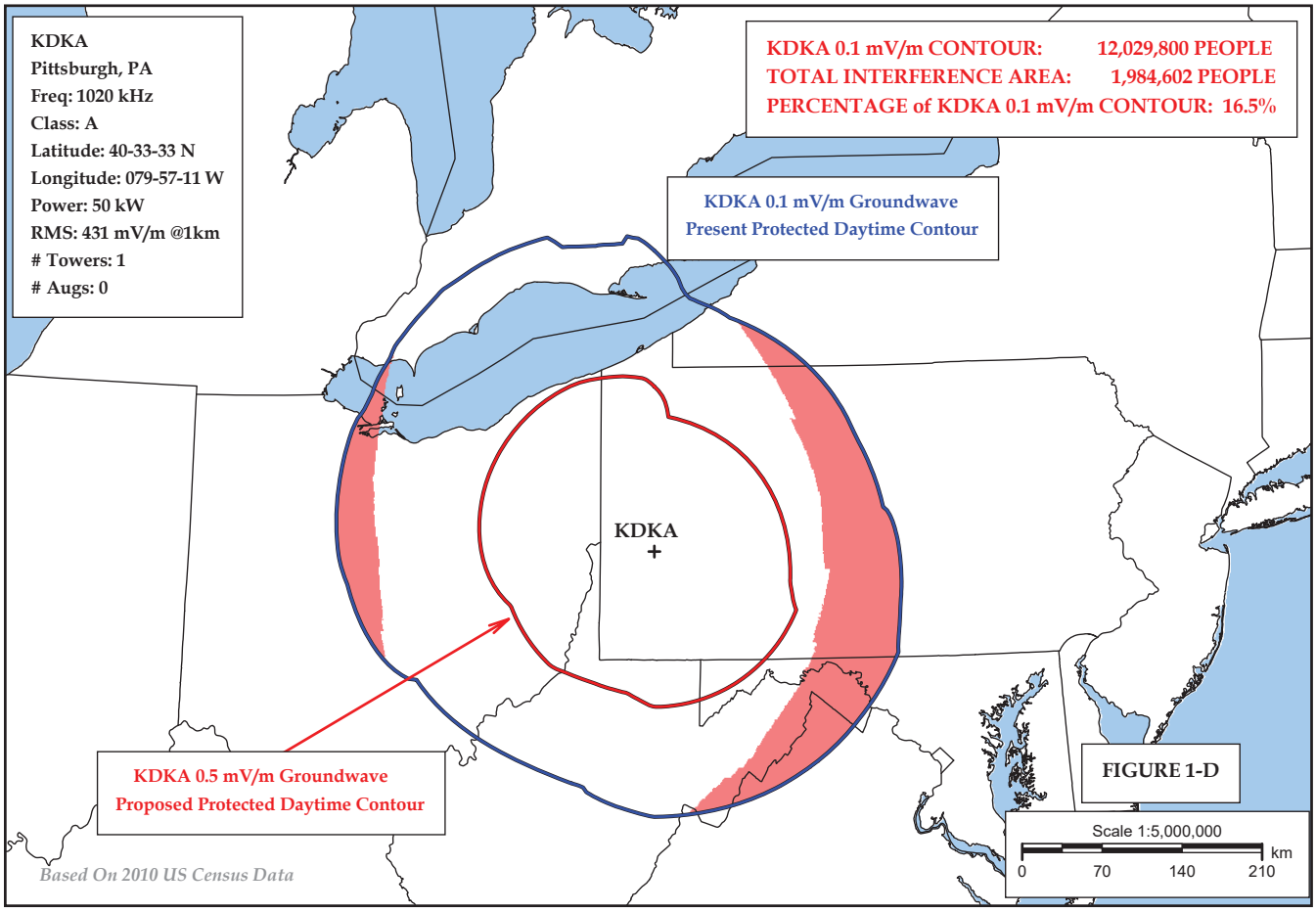


Alternative 2 - Proposed Critical Hours Interference Area from Potential Critical Hours Operation of Stations WHDD and WIBG to Class A Station KDKA, Pittsburgh, PA for One-Half Hour Before Sunset

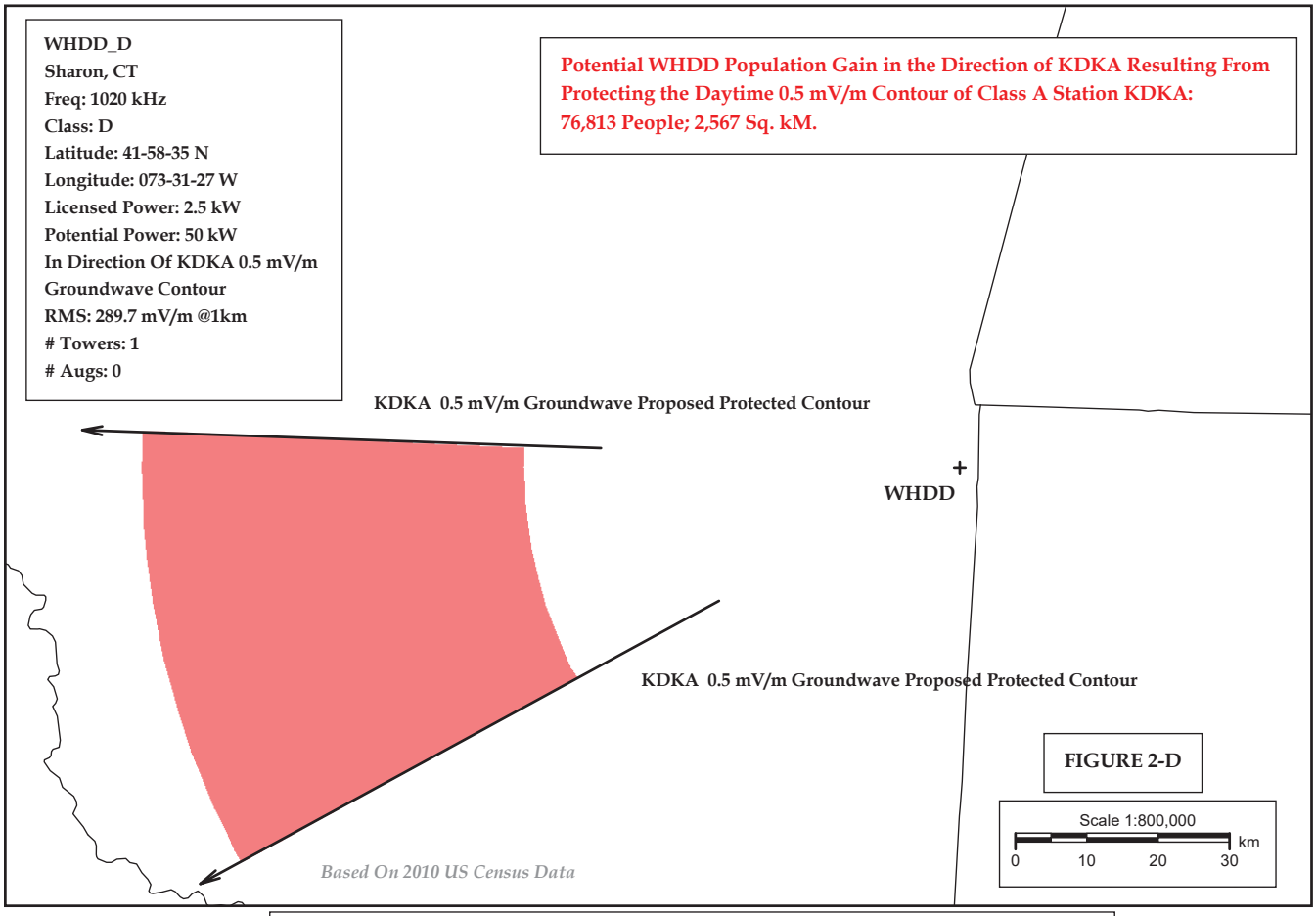


Alternative 2 - Proposed Critical Hours Interference Area from Potential Critical Hours Operation of Stations WHDD and WIBG to Class A Station KDKA, Pittsburgh, PA for One-Quarter Hour Before Sunset

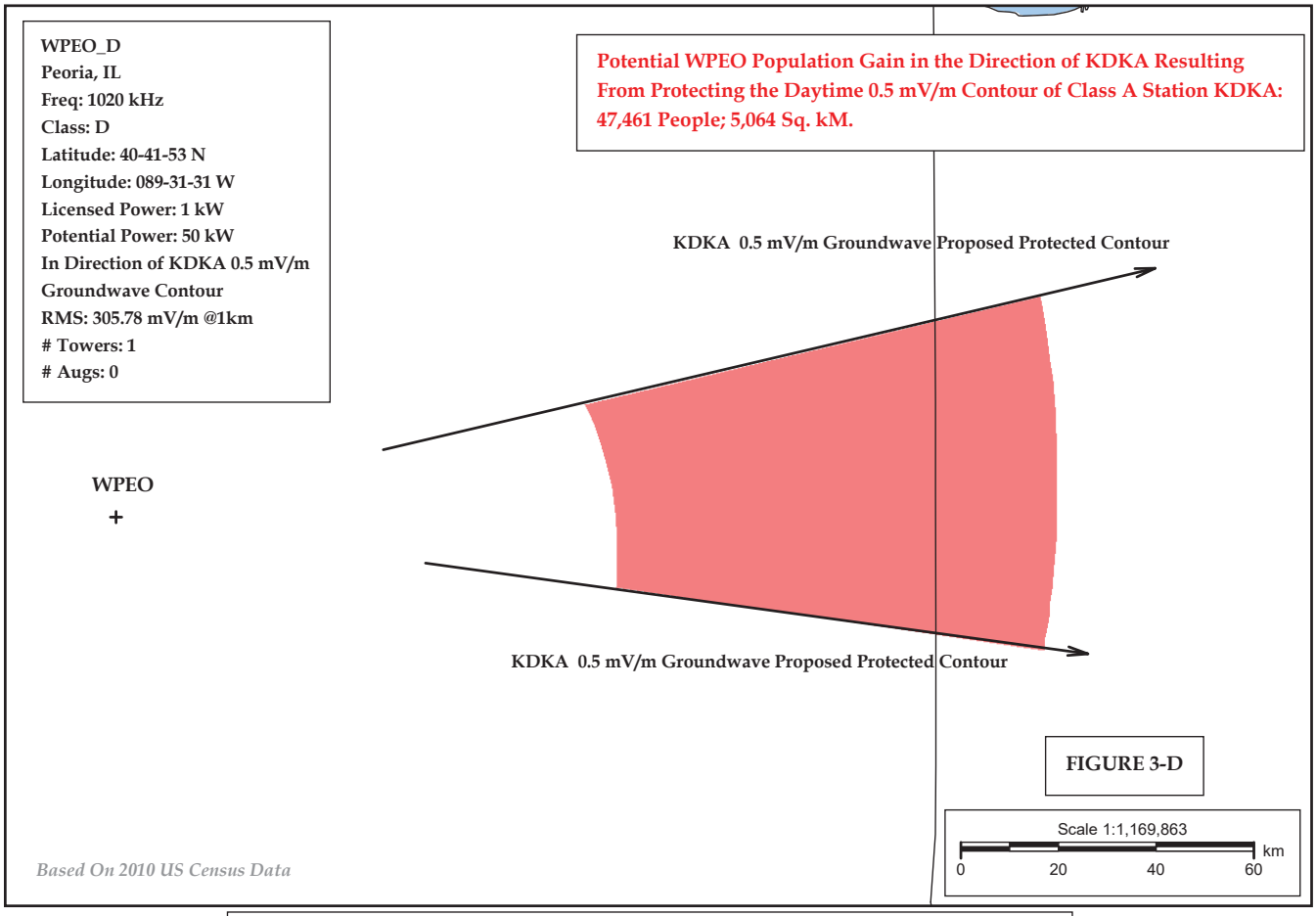
SMITH KHANNA & GUILL, Inc. - Consulting Engineers



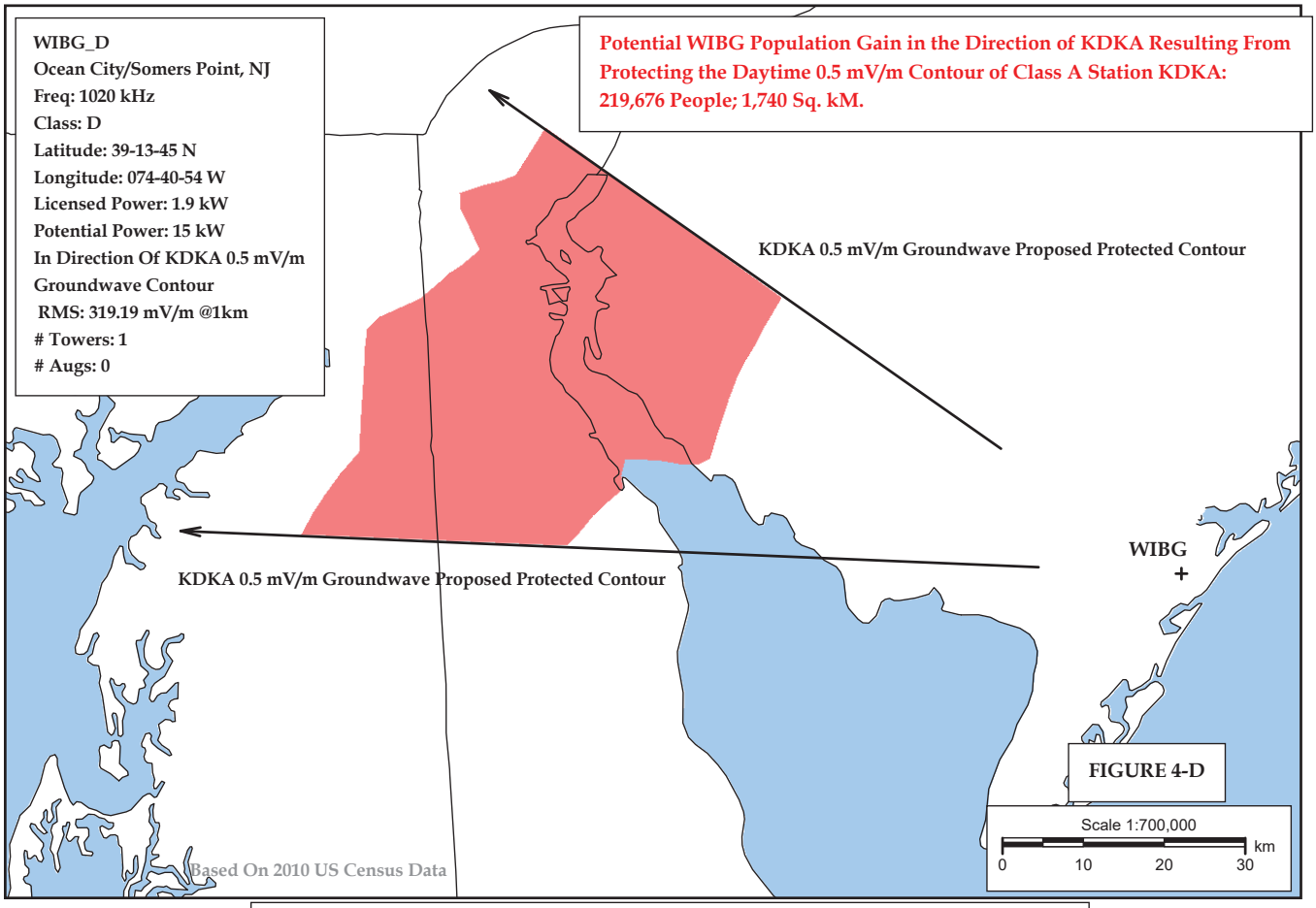
Red Shaded Area is Predicted Daytime Interference Area Within KDKA's 0.1 mV/m Contour From Class D Stations WHDD, WPEO and WIBG Operating With Maximum Power in Direction of KDKA



Potential WHDD 0.5 mV/m Gain Area In the Direction of KDKA Resulting From Class A Station KDKA Being Protected to Its 0.5 mV/m Groundwave Daytime Contour



Potential WPEO 0.5 mV/m Gain Area In the Direction of KDKA Resulting From Class A Station KDKA Being Protected to Its 0.5 mV/m Groundwave Daytime Contour



Potential WIBG 0.5 mV/m Gain Area In the Direction of KDKA Resulting From Class A Station KDKA Being Protected to Its 0.5 mV/m Groundwave Daytime Contour

KDKA, PITTSBURGH, PENNSYLVANIA
1020 kHz 50 kW ND
JANUARY 2019

KDKA NIGHTTIME OPERATION

0.5 mV/m 50% Skywave (Presently Protected Contour) Current Population	Interference Caused to 0.5 mV/m 50% Skywave by Maximized Class D Nighttime Operations Per *SFNPRM* Nighttime Alternative 1 (Figure 1-N)	
	Population:	Percentage of Interference to Population Within 0.5 mV/m 50% Skywave:
147,023,983	121,275,964	82.5%

GAIN IN CLASS D STATION'S NIGHTTIME INTERFERENCE FREE CONTOUR SERVICE WITH MAXIMUM POWER IN THE DIRECTION OF KWKH (Figures 2-N through 6-N)

Maximizing Class D Station	Gain by Population (Persons) and Area (square kilometers)	Figure
WHDD	4/0.6	2-N
WCIL	2,264/4.8	3-N
WPEO	2,752/3.7	4-N
WIBG	0/0.2	5-N
WRIX	687/1.3	6-N
COLLECTIVE GAIN:	5,707/10.4	

NET LOSS IN SERVICE FROM *SFNPRM* NIGHTTIME ALTERNATIVE 1 (CLASS A AM STATION LOSS MINUS COLLECTIVE GAIN IN CLASS D SERVICE):

121,275,964 (Loss of Class A AM Service) – 5,707 (Collective Class D Gain) = 121,270,257 persons Net Loss

KDKA, PITTSBURGH, PENNSYLVANIA
1020 kHz 50 kW ND
JANUARY 2019

KDKA CRITICAL HOURS OPERATION

***SFNPRM* Alternative 1: No Critical Hours Protections To Class A AM Stations**

Critical Hours Time Period	Interference Caused Within Class A 0.1 mV/m Groundwave Contour By Class D Operations With Full Daytime Power			Interference Caused Within Class A 0.5 mV/m Groundwave Contour By Class D Operations With Full Daytime Power		
	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.1 mV/m Groundwave Contour:	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.5 mV/m Groundwave Contour:
One Hour Before Sunset (Figure 1.1-C)	0	0	0%	0	0	0%
One-Half Hour Before Sunset (Figure 1.2-C)	1,439,283	42,616	12%	0	0	0%
One-Quarter Hour Before Sunset (Figure 1.3-C)	4,067,768	107,469	33.8%	11,349	408	0.2%

KDKA CRITICAL HOURS OPERATION

***SFNPRM* Alternative 2: Section 73.190 Critical Hours Figures Revised to Reference Distance From 0.5 mV/m Contour (in Lieu of 0.1 mV/m Contour) of Class A AM Stations**

Critical Hours Time Period	Interference Caused Within Class A 0.1 mV/m Groundwave Contour By Class D Operations Per Alternative 2			Interference Caused Within Class A 0.5 mV/m Groundwave Contour By Class D Operations Per Alternative 2		
	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.1 mV/m Groundwave Contour:	Population:	Area (square kilometers):	Percentage of Interference to Population Within 0.5 mV/m Groundwave Contour:
One Hour Before Sunset (Figure 2.1-C)	0	0	0%	0	0	0%
One-Half Hour Before Sunset (Figure 2.2-C)	1,183,266	37,049	9.83%	0	0	0%
One-Quarter Hour Before Sunset (Figure2.3-C)	3,884,520	102,952	32.3%	389	9	0.007%

KDKA, PITTSBURGH, PENNSYLVANIA
1020 kHz 50 kW ND
JANUARY 2019

KDKA DAYTIME OPERATION

0.1 mV/m Groundwave (Presently Protected Contour)	Interference Caused to Class A 0.1 mV/m Groundwave Contour By Maximized Class D Daytime Operations Per *SFNPRM* Daytime Proposal (Figure 1-D)	
Population:	**Population:**	**Percentage of Interference to Population Within 0.1 mV/m Groundwave Contour:**
12,029,800	**1,984,602**	**16.5%**

GAIN IN CLASS D STATION'S DAYTIME OPERATION IN THE DIRECTION OF WWVA WITH MAXIMUM POWER IN THE DIRECTION OF WWVA (Figures 2-D through 4-D)

Maximizing Class D Station	Gain by Population (Persons) and Area (square kilometers)	Figure
WHDD	**76,813/2,567**	**2-D**
WPEO	**47,461/5,064**	**3-D**
WIBG	**219,676/1,740**	**4-D**
COLLECTIVE GAIN:	**343,950/9,371**	

NET LOSS IN SERVICE FROM *SFNPRM* DAYTIME PROPOSAL (CLASS A AM STATION LOSS MINUS COLLECTIVE GAIN IN CLASS D SERVICE):

1,984,602 (Loss of Class A AM Service) – 343,950 (Collective Class D Gain) = 1,640,652 persons Net Loss[1]

[1] This figure represents the net loss assuming upgrades by the listed neighboring Class D stations. Potentially different populations within the studied Class A AM station could be subject to interference depending upon future neighboring upgrades, with up to 6,333,011 persons subject to loss of service (KDKA's 0.1 mV/m daytime contour population of 12,029,800 minus KDKA's 0.5 mV/m daytime contour population of 5,696,789 = 6,333,011).

Grid Based Incoming Interference Population Report

Station Information:

Call: KDKA
Freq: 1020 kHz
PITTSBURGH, PA, US
Hours: U
Lat: 40-33-33 N
Lng: 079-57-11 W
Power: 50.0 kW
Theo RMS: 431.00 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	0.0	0	2	115.4	9.9	264.2	16.0

Study Information:

Calculation Area: SkyWave 500.0 uV/m
Grid Size: 500 x 500
Reference Propagation Model: Groundwave + Skywave
Interference Propagation Model: Groundwave + Skywave
Ratios:
Co-channel: 20.0
First Adjacent: 2.0
Second Adjacent: 0.033
Third Adjacent: 0.033
Ix signals combined using RSS methodology: Yes
RSS Cutoff Percentage: 50.0
Threshold for reception: 0.1 mV/m
Population Database: 2010 US Census (PL)

Summary:

Total Station Coverage: 147,023,983 (2369512.0 sq. km)
Total Interference: 121,275,964 (1617686.0 sq. km)

Interference Free Coverage: 25,748,019 (751850.2 sq. km)

Stations Causing Interference:

Call Letters	Area (sq. km)	Housing Units	Population
WHDD_N	474,437	22,086,383	53,166,558
WCIL_N	795,678	22,265,008	51,061,745
WIBG_N	408,732	17,797,800	43,154,043
WPEO_N	560,652	17,319,363	40,087,374

WRIX 662,392 16,493,273 37,304,965

Interference Free Breakdown:

White:	17,930,249	[69.6%]
Black:	5,162,304	[20.0%]
Hispanic:	1,370,089	[5.3%]
Native American:	82,567	[0.3%]
Asian:	680,621	[2.6%]
Pacific Islander:	9,326	[0.0%]
Mixed Race:	476,386	[1.9%]
Other:	36,477	[0.1%]
Total:	25,748,019	

	Housing Units	Population	%
Alabama			
Blount County			
Total	23,887	57,322	
KDKA Coverage	23,887	57,322	
WCIL_N	23,887	57,322	100.00
WRIX	23,887	57,322	100.00
Calhoun County			
Total	53,289	118,572	
KDKA Coverage	53,289	118,572	
WCIL_N	53,289	118,572	100.00
WRIX	53,289	118,572	100.00
Chambers County			
Total	17,004	34,215	
KDKA Coverage	16,770	33,811	
WCIL_N	16,770	33,811	100.00
WRIX	16,770	33,811	100.00
Cherokee County			
Total	16,267	25,989	
KDKA Coverage	16,267	25,989	
WCIL_N	16,267	25,989	100.00
WRIX	16,267	25,989	100.00
Clay County			
Total	6,776	13,932	
KDKA Coverage	6,558	13,417	
WCIL_N	6,558	13,417	100.00
WRIX	6,558	13,417	100.00
Cleburne County			
Total	6,718	14,972	
KDKA Coverage	6,718	14,972	
WCIL_N	6,718	14,972	100.00
WRIX	6,718	14,972	100.00
Colbert County			
Total	25,758	54,428	
KDKA Coverage	25,502	53,998	

Grid Based Incoming Interference Population Report

Station Information:

Call: KDKA
Freq: 1020 kHz
PITTSBURGH, PA, US
Hours: U
Lat: 40-33-33 N
Lng: 079-57-11 W
Power: 50.0 kW
Theo RMS: 431.00 mV/m @ 1km @ 1kW

#	Field Ratio	Phase (deg)	Spacing (deg)	Orient (deg)	Height (deg)	Ref Swtch	TL Swtch	A (deg)	B (deg)	C (deg)	D (deg)
1	1.000	0.0	0.0	0.0	0.0	0	2	115.4	9.9	264.2	16.0

Study Information:

Calculation Area: GW 0.1 mV/m
Grid Size: 500 x 500
Reference Propagation Model: Groundwave
Interference Propagation Model: Groundwave
Ratios:
Co-channel: 20.0
First Adjacent: 2.0
Second Adjacent: 0.033
Third Adjacent: 0.033
Ix signals combined using RSS methodology: Yes
RSS Cutoff Percentage: 50.0
Threshold for reception: 0.1 mV/m
Population Database: 2010 US Census (PL)

Summary:

Total Station Coverage: 12,029,800 (184154.2 sq. km)
Total Interference: 1,984,602 (30409.2 sq. km)

Interference Free Coverage: 10,045,198 (153740.6 sq. km)

Stations Causing Interference:

Call Letters	Area (sq. km)	Housing Units	Population
WPEO_D	5,839	436,870	984,940
WIBG_D	21,415	409,647	936,260
WHDD_D	9,866	127,873	286,231
WHDD_N	(Not Considered In Report)		

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WCIL_N              (Not Considered In Report)
WPEO_N              (Not Considered In Report)
WIBG_N              (Not Considered In Report)
WRIX_N              (Not Considered In Report)
WRIX_DAY            (Not Considered In Report)
WCIL_D              (Not Considered In Report)

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Interference Free Breakdown:
              White:   8,631,364  [  85.9% ]
              Black:     891,779  [   8.9% ]
           Hispanic:     221,711  [   2.2% ]
    Native American:      15,195  [   0.2% ]
              Asian:     124,827  [   1.2% ]
   Pacific Islander:       1,884  [   0.0% ]
         Mixed Race:     148,345  [   1.5% ]
              Other:      10,093  [   0.1% ]

              Total:  10,045,198

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	Housing Units	Population	%
Maryland			
Allegany County			
Total	33,311	75,087	
KDKA Coverage	33,311	75,087	
Ix Free Cov	33,082	74,712	99.50
WIBG_D	229	375	0.50
Frederick County			
Total	90,136	233,385	
KDKA Coverage	622	1,517	
WIBG_D	622	1,517	100.00
Garrett County			
Total	18,854	30,097	
KDKA Coverage	18,854	30,097	
Ix Free Cov	18,854	30,097	100.00
Washington County			
Total	60,814	147,430	
KDKA Coverage	59,466	144,235	
WIBG_D	59,466	144,235	100.00
New York			
Cattaraugus County			
Total	41,111	80,317	
KDKA Coverage	15,217	33,752	
Ix Free Cov	2,739	6,092	18.05
WHDD_D	12,478	27,660	81.95
Chautauqua County			
Total	66,920	134,905	
KDKA Coverage	55,589	111,294	
Ix Free Cov	55,569	111,234	99.95
WHDD_D	20	60	0.05